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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/663,106	09/16/2003	Amos E. Cline	02-026	1814

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EXAMINER	
CHORBAJI, MONZER R	
ART UNIT	**PAPER NUMBER**
1744	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	10/663,106	CLINE, AMOS E.	
	Examiner	Art Unit	
	MONZER R. CHORBAJI	1744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 December 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

This non-final action is in response to the arguments received on 12/11/2006

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 6 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Grange et al (U.S.P.N. 4,129,387).

Regarding claims 1 and 14 Grange discloses an acoustic generating device (figure 1) and a method (col.3, lines 15-58) for treating various liquids using acoustic energy. Grange teaches the following: providing oscillatory means prone to vibration caused by turbulating fluid (figure 1:6), a housing (figure 1:1) having an inner diameter (unlabeled inner diameter of housing in figure 1), a first housing end (unlabeled first end of housing 1 in figure 1) with an inlet orifice (figure 1:2), a second housing end (unlabeled second end of housing 1 in figure 1) with an outlet orifice (figure 2, outlet), an expanded flow area (unlabeled inner volume of housing 1) extending between the inlet orifice (figure 1:2) and the outlet orifice (figure 2, outlet), a process fluid that flows into and out of the housing (col.3, lines 15-26 and col.4, lines 29-35), oscillatory means positioned within the expanded flow area (figure 1:6 and the unlabeled inner volume of 1 in figure 1), creating turbulent flow on a process fluid (figure 1:4 and col.2, lines 6-23), forcing the turbulently flowing process fluid to flow through the oscillatory means (col.2,

lines 20-23) so that the turbulating process fluid causes the oscillatory means to vibrate thereby generating acoustic energy (col.3, lines 17-21), forcing the process fluid and the acoustic energy through non-linear flow path (for example, non-linear flow is caused when fluid impinges on tuning plates 12 of figure 3 or col.4, lines 3-13 or figure 2, inlet and outlet), inlet orifice (figure 1:2) is narrower in diameter than the inner diameter of the housing (figure 1:1) such flow of the process liquid through the inlet orifice into the expanded flow area results in turbulent flow (figure 1:2 and 4).

Regarding claims 6 and 12-13, Grange discloses the following: a housing seal assembly (figure 1:2, 5 and 24) that includes a seal cap (figure 1:5), an o-ring (figure 1:24), a nipple insert (unlabeled outer end of 2 in figure 2), housing seal assembly fitting over the first end of the housing (in figure 1, 2 and 5 fits over the first unlabeled end of housing 1), nipple insert (unlabeled outer end of 2 in figure 2) provides a flow path into the inlet, the device is capable of sanitizing process liquids and the device acoustic energy homogenizes various process fluids (col.1, lines 5-6).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 2-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grange et al (U.S.P.N. 4,129,387) as applied to claim 1 and further in view of Hemker (U.S.P.N. 3,856,270).

Regarding claims 2-5, Grange's housing has a longitudinal axis (an imaginary horizontal axis extending from center point of the first unlabeled end to the second center point of the second unlabeled end of housing 1 in figure 1) that extends from a center point of the first housing end to a center point of the second housing end; however, Grange fails to place plurality of resonating perforated baffles within his housing. Hemker discloses the following: placing plurality of vertically aligned perforated baffles within a housing (figure 1:11, 15, 37 and 49) where each baffle has a face (figure 3:43) with a through-hole (figure 3:47) and an outer perimeter of the face corresponds with the inner diameter of the housing (see plate 43 sealing touches the inner surfaces of housing 11 in figure 1), each baffle has a flow-control aperture (figure 2:15, 33) with a small diameter, each baffle includes two of the flow-control apertures (figure 2:15, 33 and 29) and a spacer (figure 1:15), diameter of through-hole of spacer (figure 2:15 and 19) is a pass-through aperture having a diameter larger than the small diameter of the flow-control aperture (figure 2:15 and 33), flow-control baffles are separated from one another by a spacer (figure 1:37), flow-control baffle (for example, 37 in figure 3) includes a single-aperture baffle (figure 4:53) and a multiple-aperture flow control baffle

(figure 3:37, 47 and 39), single-aperture baffle has a single flow-control aperture (figure 4:53) and multiple-aperture baffle has multiple flow-control apertures (figure 3:37, 47 and 39). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to further place Hemker's vertically oriented perforated baffle plates within Grange's housing so that an intimate blending of all portions of the liquid is additionally accomplished (Grange, col.2, lines 61-64).

6. Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grange et al (U.S.P.N. 4,129,387) as applied to claim 1 and further in view of Branson (U.S.P.N. 3,222,221).

Regarding claims 7-11, Grange fails to teach the following: the oscillatory means include an oscillatory circuit, a pair of piezoelectric members that includes first and second members that are electrically connected with the oscillatory circuit, the use of flow partition between the piezoelectric members and extending in a direction parallel to the longitudinal axis and the piezoelectric members connected to a pulse generator. Branson ultrasonically cleans items within a liquid and teaches the following: an inherent oscillatory circuit for the acoustic device to operate, pair of first and second piezoelectric members (figure 1:22) that are necessarily connected to the oscillatory circuit so that sonic energy is generated, the acoustic waves emanating from the piezoelectric members (figure 2:22 and imaginary longitudinal axis from one end of the tank to the other) inherently travel in a direction transverse to the longitudinal axis of the tank, flow partition disposed between the piezoelectric members (figure 2:15, 17 and 22) and is capable of extending in a direction parallel to the longitudinal axis of the tank,

the first piezoelectric member is necessarily connected to the oscillatory circuit for the acoustic device to operate, a pulse generator (col.3, lines 71-72) and the use of multiple pairs of piezoelectric members (figure 2:22). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to place Branson's piezoelectric members into Grange's housing so that fluids with different densities are treated ultrasonically (Branson, col.5, lines 24-29).

Response to Arguments

7. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Gaffney (U.S.P.N. 3,278,165) and Jones (U.S.P.N. 3,169,013) use turbulent fluid flow to cause the oscillatory means to vibrate thereby creating acoustic energy.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONZER R. CHORBAJI whose telephone number is (571) 272-1271. The examiner can normally be reached on M-F 9:00-5:30.

10. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, GLADYS J. CORCORAN can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MRC

GLADYS JP CORCORAN
SUPERVISORY PATENT EXAMINER